MATHS

BOOKS - MAHAVEER PUBLICATION

CONTINUITY OF A FUNCTION

Question Bank

1. Check the continuity of the function f given by $f(x) = x+2$ at $x = 2$

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2. Check the continuity of the function f given by f(x) = x^2 at x = 0

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3. Check the continuity of the function f given by f(x) = |x|at x = 0

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4. Check the continuity of the function f at x = 0 given by f(x) = $\begin{cases} 2x+3 & x \neq 0 \\ 2 & x = 0 \end{cases}$

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5. Discuss the continuity of

$f(x) = \begin{cases} x+2 & x \leq 1 \\ x-2 & x > 1 \end{cases}$ at x=1.

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6. Examine the continuity of f(x) = |x-a| at x =a

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7. Examine the continuity of f(x) = $\begin{cases} \frac{\sin x}{x} & x \neq 0 \\ 1 & x = 0 \end{cases}$ at x =0

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8. Discuss the continuity of the function :

$$f(x) = \begin{cases} \frac{|x-a|}{x-a}, \text{when} & x \neq a \\ 1 \quad , \text{when} & x = a \end{cases}$$ at x = a.

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9. Find the correct alternative from the following :

At $x = 3$, the function given by $f(x) = \begin{cases} x^2 & x < 3 \\ 6x - 9 & x \geq 3 \end{cases}$ is

(a) Continuous

(b) Not continuous

(c) Not differentiable

(d) Differentiable

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10. Let f be the function defined by f(x) =

$$\begin{cases} \frac{x^2-4}{x-2} & x \neq 2 \\ 1 & x = 2 \end{cases}$$

Which of the following statement about f is true ?

(a) f is undefined at x = 2

(b) f is continuous at x = 2

(c) f is discontinuous at x= 2

(d) f is differentiable at x = 2

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11. Let f is defined by the following function

$$f(x) = \begin{cases} \sin x & x < 0 \\ x^2 & 0 \leq x < 1 \\ 2 - x & 1 \leq x \leq 2 \\ x - 3 & x \geq 2 \end{cases}$$

For what value of x, f is not continuous ?

A. 1 only

B. 2 only

C. 0 and 2 only

D. 0,1, and 2

Answer: A

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12. At x =1, the function given by $f(x) = \begin{cases} x & x < 1 \\ 2x - 1 & x \geq 1 \end{cases}$ is

(a) Continuous

(b) Not continuous

(c) Not defined

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13. At x =1, the function given by $f(x) = \begin{cases} \sin x & x < 0 \\ 2x & x \geq 0 \end{cases}$ is

(a) Continuous

(b) Not continuous

(c) Not defined

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14. Examine the continuity of f(x) = $\begin{cases} \frac{|x-2|}{x-2} & x \neq 2 \\ 1 & x = 2 \end{cases}$ at x = 2

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15. Examine the continuity of f(x) =

$$\begin{cases} \frac{\sin 2x}{2x} & x \neq 0 \\ 2 & x = 0 \end{cases}$$ at x = 0

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16. Examine the continuity of f(x) =

$$\begin{cases} \frac{|x-1|}{x-1} & x \neq 1 \\ 0 & x = 1 \end{cases}$$ at x = 1

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17. Examine the continuity of f(x) = $\begin{cases} 2x+1 & x \leq 0 \\ 1-3x & x > 0 \end{cases}$ is continuous at x=0

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18. Examine the continuity of f(x) = $\begin{cases} \left(\frac{|x^3-8|}{x^2-4}\right) & x \neq 2 \\ 3 & x = 2 \end{cases}$ at the point x = 2

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19. Examine the continuity of f(x) =

$$\begin{cases} 1-x & x<1 \\ 0 & x=1 \\ 1+x & x>1 \end{cases}$$

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20. Examine the continuity of the following function at x = 1

f(x) =$\begin{cases} x+2 & -1 \leq x < 1 \\ 4-x & 1 \leq x \end{cases}$

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21. Draw the graph of f(x) if

$$f(x) = \begin{cases} x - 2 & x < 0 \\ x & 0 \leq x \end{cases}$$

Is it a continuous function ?

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